

Input variables with SFAS 106:

$$\eta = 0.0$$

$$\theta = 1.5$$

$$\rho_1 = 0.64$$

$$\rho_2 = 0.64$$

$$D_1 = 1.0$$

$$D_2 = 1.03$$

$$\gamma = 0.25$$

$$\nu = 100$$

$$K^* = 100$$

$$A_1 = A_2 = 1.0$$

$$M^* = 300$$

$$\alpha_1^\theta = 0.68$$

$$\alpha_2^\theta = 0.32 \quad [\text{Note that } \alpha_1^\theta + \alpha_2^\theta = 1 \text{ as required by equation (B13)}]$$

Below are lists of the values of the variables obtained by the model for: (1) the initial calibration of the model; and (2) the calculation of the effects of SFAS 106.

Results of initial calibration:

$$N_1 = 68$$

$$N_2 = 32$$

$$K_1 = 68$$

$$K_2 = 32$$

$$Y_1 = 68$$

$$Y_2 = 32$$

$$w = 0.64$$

$$r = 0.36$$

$$\nu = 100$$

$$A_2 = 1.0$$

$$M^* = 300$$

$$N^* = 100$$

$$\alpha_1^0 = 0.68$$

$$\alpha_2^0 = 0.32$$

Results of model with SFAS 106:

$N^* = 100$

$P_1 = 0.994063332$

$P_2 = 1.01304766$

$P = 1.00007984$

$N_1 = 68.8429959$

$N_2 = 31.1570041$

$K_1 = 68.2054725$

$K_2 = 31.7945275$

$Y_1 - C_1 = 68.6128039$

$Y_2 - C_2 = 31.3850263$

$w = 0.634073253$

$r = 0.36$

$M = 300$

private sector fixed-weight price index = 1.0001383
(sector 1 weight = 0.68; sector 2 weight = 0.32)

GNP-PI = 1.0001236
(private sector weight = 0.894; government sector weight = 0.106)

Although Appendix C of the Godwins Report provides derivations of equations, more detailed algebraic derivations are provided below for the following equations:

- (a) equation (A10) on page 55
- (b) equation (B4) on page 58
- (c) equation (B5) on page 58

(a) derivation of (A10) on page 55:

Substituting (A9) into (A7) yields

$$(R1) \quad \alpha_i C_i^{-1/\theta} \gamma C^{(1-\theta)/\theta} (1-\gamma) I = (1-\gamma) P_i$$

Divide both sides of (R1) by $1-\gamma$ to obtain

$$(R2) \quad \alpha_i C_i^{-1/\theta} \gamma C^{(1-\theta)/\theta} I = P_i$$

Raise both sides of (R2) to the power $1-\theta$ to obtain

$$(R3) \quad \alpha_i^{1-\theta} C_i^{(\theta-1)/\theta} \gamma^{1-\theta} C^{(1-\theta)(1-\theta)/\theta} I^{1-\theta} = P_i^{1-\theta}$$

Multiply both sides of (R3) by α_i^θ to obtain

$$(R4) \quad \alpha_i C_i^{(\theta-1)/\theta} \gamma^{1-\theta} C^{(1-\theta)(1-\theta)/\theta} I^{1-\theta} = \alpha_i^\theta P_i^{1-\theta}$$

Observe from the definition of P in (A4) that

$$(R5) \quad P^{1-\theta} = \sum_i \alpha_i^\theta P_i^{1-\theta}$$

Sum both sides of (R4) over i and use (R5) to simplify the right hand side of the resulting equation to obtain

$$(R6) \quad \gamma^{1-\theta} C^{(1-\theta)(1-\theta)/\theta} I^{1-\theta} \sum_i \alpha_i C_i^{(\theta-1)/\theta} = P^{1-\theta}$$

Observe from the definition of C in (A3) that

$$(R7) \quad \sum_i \alpha_i C_i^{(\theta-1)/\theta} = C^{(\theta-1)/\theta}$$

Substituting (R7) into (R6) yields

$$(R8) \quad \gamma^{1-\theta} I^{1-\theta} C^{(1-\theta)(1-\theta)/\theta} C^{(\theta-1)/\theta} = P^{1-\theta}$$

Raise both sides of (R8) to the power $1/(1-\theta)$ to obtain

$$(R9) \quad \gamma I C^{(1-\theta)/\theta} C^{-1/\theta} = P$$

Simplifying the left hand side of (R9) yields

$$(R10) \quad \gamma I C^{-1} = P$$

Multiplying both sides of (R10) by C yields

$$(A10) \quad \gamma I = PC$$

(b) derivation of (B4) on page 58: The expanded version of the Appendix at the end of this document contains a more complete algebraic derivation of equation (B4) than is provided in the Godwins Report. This more complete derivation is reproduced below.

Define $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to be the share of total output that is produced in sector i . Multiply both sides of the labor demand equation (A18) by $N_i / (N^* \rho_i)$ to obtain

$$(B3') \quad P_i Y_i / N^* = w N_i D_i / (N^* \rho_i) \quad i = 1, 2$$

Recall that $s_i^N = N_i / N^*$ so that (B3') becomes

$$(B3'') \quad P_i Y_i / N^* = w s_i^N D_i / \rho_i \quad i = 1, 2$$

Now sum (B3'') over sectors 1 and 2 to obtain

$$(B3''') \quad (P_1 Y_1 + P_2 Y_2) / N^* = w (s_1^N D_1 / \rho_1 + s_2^N D_2 / \rho_2)$$

Now divide (B3'') by (B3''') and use the fact that $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to obtain

$$(B4) \quad s_i^Y = (D_i s_i^N / \rho_i) / (D_1 s_1^N / \rho_1 + D_2 s_2^N / \rho_2) \quad i = 1, 2$$

(c) derivation of (B5) on page 58: The expanded version of the Appendix at the end of this document contains a more complete algebraic derivation of equation (B5) than is provided in the Godwins Report. This more complete derivation is reproduced below.

Multiply both sides of the capital demand equation (A19) by $K_i / (P_1 Y_1 + P_2 Y_2)$ and divide both sides by r to obtain

$$(B4') \quad K_i / (P_1 Y_1 + P_2 Y_2) = (1 - \rho_i) P_i Y_i / ((P_1 Y_1 + P_2 Y_2) r) \quad i = 1, 2$$

Use the fact that $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to write (B4') as

$$(B4'') \quad K_i / (P_1 Y_1 + P_2 Y_2) = (1 - \rho_i) s_i^Y / r \quad i = 1, 2$$

Next sum (B4'') over sectors 1 and 2 and recall that $K_1 + K_2 = K^*$ to obtain

$$(B4''') \quad K^* / (P_1 Y_1 + P_2 Y_2) = [(1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y] / r \quad i = 1, 2$$

Divide (B4'') by (B4''') to obtain

$$(B4''') \quad K_i / K^* = (1 - \rho_i) s_i^Y / [(1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y] \quad i = 1, 2$$

Multiply both sides of (B4''') by K^* to obtain

$$(B5) \quad K_i = [(1 - \rho_i) s_i^Y / ((1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y)] K^* \quad i = 1, 2$$

The Godwins Report followed a conservative approach in calculating the impact of SFAS 106 on GNP-PI. The guiding principle of the conservative approach is that whenever a choice needs to be made about some variable or some assumption, we use the value of the variable or the assumption that overstates the impact of SFAS 106 on GNP-PI. By following this approach, we can be fairly confident that we have not understated the impact of SFAS 106 on GNP-PI.

The July 1992 Supplemental Report to the Godwins Report pointed to specific examples of choices governed by the conservative approach.¹ In addition, the conservative approach guided the assumptions about how firms and workers view future OPEB payments. One possibility for specifying the model was to assume that everyone in the economy, workers and firms alike, fully understands and takes account of future OPEB payments. In this case, compensation per worker, which includes the present value of future OPEB, would be equalized across sectors. However, in this case, the impact of SFAS 106 on GNP-PI would be precisely zero. Any increase in OPEB in sector 2 would be offset by a decrease in non-OPEB compensation in sector 2.

Rather than choose a set of assumptions that delivered a zero impact of SFAS 106 on GNP-PI, we chose a set of assumptions that would increase GNP-PI, in order to implement a conservative approach. In order for an increase in OPEB not to be offset by a decrease in wages, the firms and/or the workers must not take account of the increase in OPEB. It seemed that the most realistic approach is to assume that (1) after the introduction of SFAS 106 firms fully recognize future OPEB costs as part of total compensation paid to current workers; but (2) workers do not take account of future OPEB benefits (which for the average worker may be more than two decades in the future) in making their labor supply decisions.

One consequence of the assumption that workers ignore future OPEB benefits is that the total compensation package per worker, including OPEB, is higher in sector 2 than in sector 1. However, wages and fringes, excluding OPEB, are equalized across both sectors. A second consequence of this assumption is that the wage rate in sector 2 does not fall as much as it would otherwise, and thus the price level under SFAS 106 is higher than if we had assumed that everyone takes account of future OPEB payments. Therefore, this assumption helps to implement the conservative approach of guarding against understating the impact of SFAS 106 on GNP-PI.

¹Specific examples of choices governed by this conservative approach are listed for the actuarial analysis in footnote 4, p. 16 and for the macroeconomic analysis on page 32 of the July 1992 Supplemental Report to the Godwins Report.

Expanded version of
"Appendix C, Part II: Calibration of the Model"

[Note: The equations are numbered so that equations that appeared in the original version of the appendix have the same numbers in this version. New equations are numbered with one or more apostrophes or asterisks.]

The model is calibrated so that in the absence of SFAS 106 it yields an allocation of labor across sectors that matches the actual allocation of labor across sectors. It is also calibrated such that in the absence of SFAS 106, all nominal prices are equal to one.

The inputs to the model are:

η , the elasticity of labor supply

θ , the elasticity of substitution between the consumption of any two goods

ρ_1 , the share of labor in total cost in sector 1

ρ_2 , the share of labor in total cost in sector 2

D_2 , the SFAS 106 cost factor in sector 2 (equal to 1 in the absence of SFAS 106)

$s_1^N = N_1/N^*$, the fraction of labor employed in sector 1

In addition, there are three other inputs to the model that are simply normalizations. None of the important results of the model depends on the value of these inputs.

γ , the share of nominal expenditure devoted to produced goods

N_0^* , the initial total amount of labor

K^* , the fixed total amount of capital

In the absence of SFAS 106, all nominal prices are set equal to one

$$(B1) \quad P_i = 1 \qquad i = 1, 2$$

$$(B2) \quad P = 1$$

The amount of labor initially used in each sector follows directly from the fraction of the labor force employed in sector i , s_i^N , and the total amount of labor employed, N_0^*

$$(B3) \quad N_i = s_i^N N_0^* \qquad i = 1, 2$$

Define $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to be the share of total output that is produced in sector i . Multiply both sides of the labor demand equation (A18) by $N_i / (N^* \rho_i)$ to obtain

$$(B3') \quad P_i Y_i / N^* = w N_i D_i / (N^* \rho_i) \quad i = 1, 2$$

Recall that $s_i^N = N_i / N^*$ so that (B3') becomes

$$(B3'') \quad P_i Y_i / N^* = w s_i^N D_i / \rho_i \quad i = 1, 2$$

Now sum (B3'') over sectors 1 and 2 to obtain

$$(B3''') \quad (P_1 Y_1 + P_2 Y_2) / N^* = w (s_1^N D_1 / \rho_1 + s_2^N D_2 / \rho_2)$$

Now divide (B3'') by (B3''') and use the fact that $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to obtain

$$(B4) \quad s_i^Y = (D_i s_i^N / \rho_i) / (D_1 s_1^N / \rho_1 + D_2 s_2^N / \rho_2) \quad i = 1, 2$$

Recall that in the initial equilibrium $D_i = 1$ so that (B4) becomes

$$(B4*) \quad s_i^Y = (s_i^N / \rho_i) / (s_1^N / \rho_1 + s_2^N / \rho_2) \quad i = 1, 2$$

Multiply both sides of the capital demand equation (A19) by $K_i / (P_1 Y_1 + P_2 Y_2)$ and divide both sides by r to obtain

$$(B4') \quad K_i / (P_1 Y_1 + P_2 Y_2) = (1 - \rho_i) P_i Y_i / ((P_1 Y_1 + P_2 Y_2) r) \quad i = 1, 2$$

Use the fact that $s_i^Y = P_i Y_i / (P_1 Y_1 + P_2 Y_2)$ to write (B4') as

$$(B4'') \quad K_i / (P_1 Y_1 + P_2 Y_2) = (1 - \rho_i) s_i^Y / r \quad i = 1, 2$$

Next sum (B4'') over sectors 1 and 2 and recall that $K_1 + K_2 = K^*$ to obtain

$$(B4''') \quad K^* / (P_1 Y_1 + P_2 Y_2) = [(1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y] / r \quad i = 1, 2$$

Divide (B4'') by (B4''') to obtain

$$(B4''') \quad K_i / K^* = (1 - \rho_i) s_i^Y / [(1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y] \quad i = 1, 2$$

Multiply both sides of (B4''') by K^* to obtain

$$(B5) \quad K_i = ((1 - \rho_i) s_i^Y / [(1 - \rho_1) s_1^Y + (1 - \rho_2) s_2^Y]) K^* \quad i = 1, 2$$

Normalize $A_1 = 1$ so that the production function in the first sector is

$$(B6) \quad Y_1 = N_1^{\rho_1} K_1^{1-\rho_1}$$

Using Y_1 from (B6), the nominal wage can be determined from the labor demand equation (A18) for sector 1 to obtain

$$(B7) \quad w = \rho_1 Y_1 P_1 / (D_1 N_1)$$

Recall that in the initial equilibrium $P_1 = 1$ and $D_1 = 1$ so that

$$(B7') \quad w = \rho_1 Y_1 / N_1$$

Using Y_1 from (B6), the nominal rental price of capital can be determined from the capital demand equation (A19) for sector 1 to obtain

$$(B8) \quad r = (1-\rho_1) Y_1 P_1 / K_1$$

Recall that in the initial equilibrium $P_1 = 1$ so that

$$(B8') \quad r = (1-\rho_1) Y_1 / K_1$$

Now calculate ν in the labor supply curve (eq. A15) as

$$(B9) \quad \nu = N_0^* (P/w)^\eta$$

Recall that $P = 1$ in the initial equilibrium so that

$$(B9') \quad \nu = N_0^* (1/w)^\eta$$

To calibrate A_2 , substitute the production function (A16) into the labor demand equation (A18) and set $P_i = 1$ (eq. B1) to obtain

$$(B10) \quad A_2 = (D_2 w / \rho_2) (N_2 / K_2)^{1-\rho_2}$$

Recall that $D_2 = 1$ in the initial equilibrium so that

$$(B10') \quad A_2 = (w / \rho_2) (N_2 / K_2)^{1-\rho_2}$$

Now set all prices equal to 1 in the equilibrium condition (A23), and use (A22) to obtain

$$(B11) \quad Y_i = \alpha_i^\theta (\gamma/(1-\gamma)) M^*$$

Summing (B11) over i we obtain

$$(B12) \quad Y_1 + Y_2 = (\gamma/(1-\gamma)) M^* (\alpha_1^\theta + \alpha_2^\theta)$$

Now observe that with $P = P_i = 1$ for all i , equation (A4) implies that

$$(B13) \quad \alpha_1^\theta + \alpha_2^\theta = 1$$

Substituting (B13) into (B12) and rearranging yields

$$(B14) \quad M^* = ((1-\gamma)/\gamma) [Y_1 + Y_2]$$

Finally, substituting (B14) into (B11) and recalling that when $P_i = P = 1$, $s_i^Y = Y_i/[Y_1 + Y_2]$, we obtain

$$(B15) \quad \alpha_i^\theta = s_i^Y \quad i = 1, 2$$

Attachment H - USTA ex parte letter



United States Telephone Association

900 19th Street, N.W., Suite 800
Washington, D.C. 20006-2105
(202) 835-3100

January 14, 1993

Chairman Alfred C. Sikes
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: CC Docket No. 92-101

Dear Chairman Sikes:

Over the past several weeks, MCI has circulated a number of different ex parte letters seeking to influence the application of the Commission's rules to SFAS 106 exogenous treatment by price cap exchange carriers (LECs). Because we find significant errors or incorrect representations in these letters, USTA is filing this written response, which covers all of the recent MCI ex parte letters of which we have become aware.

There are myriad claims that are included in the letters. Most are not directly related to this proceeding at all, but appear to be included simply to amplify the few direct arguments MCI is restating.

The single claim that runs through each letter is that, because postretirement benefits themselves "were incurred by the LECs as a result of decisions made during wage negotiations," the adoption of SFAS 106 and its ramifications therefore could not constitute an exogenous event.¹ MCI claims that exogenous treatment is not merited because MCI has concluded that benefit levels themselves were under the carrier's control. MCI misunderstands or simply misstates the issue. The central issue here is the fact that carriers have been mandated to change their method of accounting for OPEBs, and that the new accounting requirement forces OPEBs costs to be recognized on a different basis. It is the mandated accounting change that is the exogenous event. The price cap LECs had no control over the event which has required them to implement accrual accounting for OPEBs. The Financial Accounting Standards Board (FASB) and the Commission have made SFAS 106 mandatory.

MCI also incorrectly states that the accounting change is focused primarily on future costs, stating: "what has changed is the method of recognizing future costs."² MCI also implies that SFAS 106 has not changed actual costs. These statements are deceptively

¹ See, e.g., MCI ex parte, January 6, 1992, from D. Evans at 1.

² See MCI ex parte, January 6, 1993, from D. Evans at 1.

incomplete. SFAS 106 costs are real costs of doing business that have been incurred by the carriers, and represent cash obligations that SFAS 106 now requires be recognized.

Just as the Commission has concluded in other contexts that current ratepayer costs should not be paid by future ratepayer groups, SFAS 106 requires that current costs of providing OPEBs be recognized in the current period, rather than delayed. The preexisting rule provided for a pay-as-you-go arrangement, whereby a carrier would recognize expenses actually incurred in previous periods only at the time they are paid. The FASB and the Commission have already concluded that this failed to reflect the true economic cost of OPEBs. The Commission has adopted SFAS 106 accounting.

Under preexisting accounting rules and rate of return regulatory constraints, the price cap LECs' OPEBs costs were postponed into the future, significantly understating the true cost of OPEBs. This resulted in prices to customers that were lower than required to cover the benefit obligations to employees working for the carriers at that time. Of course, SFAS 106 provides for ongoing recognition of costs as they are incurred. However, it also requires prior costs already incurred be recognized, causing real financial impacts now. SFAS 106 is being implemented across the business spectrum; there is no special consideration that could prevent LECs from doing the same. MCI and others who are outside comprehensive regulation have wide discretion to recover the true cost of OPEBs on a continuing basis in the prices they set. In contrast, the LECs under rate of return regulation and pay-as-you-go accounting for OPEBs had prices established using amounts below the actual cost of OPEBs; the prices of service now are simply being reconciled as these costs are taken into account under SFAS 106. Exogenous treatment of OPEBs cost that now should be recognized would not necessarily lead to an increase in revenue. Each price cap LEC must address its own price and market constraints.

MCI incorrectly asserts that the price cap LECs are requesting "relief from the very method of regulation that they advocated."³ Actually, it is MCI which seeks to revise the rules to force OPEBs into the endogenous category of costs. That is why it has made its arguments here, however thin they are. The price cap rules and orders establish criteria for exogenous treatment. The price cap LECs contend that the handling of OPEBs as exogenous is a straightforward application of those Commission directives.

Certainly, the FASB had OPEBs accounting under consideration for an extended period of time. USTA and the price cap LECs were aware that accrual accounting for OPEBs could be required at some point. They argued to the Commission that exogenous treatment of accounting changes was an essential element of a fair regulatory plan. The

³ See MCI ex parte, December 17, 1992, from D. Akerson at 1.

Commission concluded in adopting the price cap rules that "recognition of changing costs in adjustments to price caps is necessary to ensure that rates are not unreasonable from both a carrier's and the ratepayer's perspective."⁴ Part 61.45 (d)(1) of the Commission's Rules allows for exogenous treatment of accounting changes as the Commission shall permit or require, and its Rules also provide for tariffs to address them when the changes are introduced. Thus, the price cap LECs are not requesting a change in price cap rules. In contrast, MCI apparently wants a redefinition of the exogenous cost mechanism so it will recognize only reductions in price cap indexes. The existing Commission Rules, however, contemplate both increases and decreases to price cap indexes. MCI bears a heavy burden to show that a new rule should be adopted to disallow costs that FASB 106 and the USOA require be recognized by the price cap LECs now.

MCI incorrectly suggests that "if the Commission allows exogenous treatment of post retirement benefits because the 'full' impact on each individual LEC is not reflected immediately in GNP-PI," the Commission must unbundle the entire GNP-PI.⁵ MCI misunderstands the Commission's rationale for using GNP-PI inflation as an adjustment to the price cap indexes (and also the LECs' examination of GNP-PI in this docket.)⁶ Growth in GNP-PI represents general inflation in the U.S. economy. It is used in the price cap framework because the prices of normal inputs used by carriers rise with the overall inflation rate. GNP-PI was selected by the Commission because it is a broad and conservative measure of inflation that could be expected to adequately reflect it in the price cap formula. The Commission recognized that GNP-PI would not capture all events affecting the prices of carriers' inputs; the exogenous cost framework exists in part to deal with these other effects. SFAS 106 costs are not accommodated in the normal GNP-PI framework. MCI is stretching for offsetting adjustments in claiming that LECs do not purchase certain goods or services that are reflected in GNP-PI. MCI provides no basis for reevaluating specific parts of GNP-PI within the context of the price cap formula.

Finally, MCI incorrectly implies that the LECs should record the difference between SFAS 106 costs and pay-as-you-go costs as a regulatory asset. The Commission must reject this demand. The Commission has already ordered SFAS 106 costs be reflected on

⁴ Further Notice, CC Docket No. 87-313, at ¶ 336.

⁵ See MCI ex parte, January 6, 1993, from D. Evans at 2.

⁶ It was in response to specific Commission orders that the price cap LECs undertook an examination of the GNP-PI to determine the extent, if any, of a possible double-counting of the exogenous recovery using the existing price cap mechanism. See, for example, Order on Reconsideration, CC Docket No. 87-313, released April 17, 1991, at ¶ 63; and Order of Investigation and Suspension, CC Docket No. 92-101, released April 30, 1992, at ¶¶ 11, 15 and 16.

the income statement, not recorded as a regulatory asset. Also, the Emerging Issues Task Force (EITF) of the FASB has already concluded that unless a regulator provides future revenue at least equal to the deferred cost (regulatory asset), the establishment of a regulatory asset will not be allowed.⁷ This MCI suggestion contradicts generally accepted accounting principles.

The other claims that appear in the MCI letters repeat themes that appear in MCI filings in other proceedings, but that are essentially irrelevant here. MCI attempts to leverage claims that LECs face less competition, suggestions to take the expenses below the line, and requests for a broad access price review, all without substantiation, presumably to obtain offsetting cost reductions. The Commission has already concluded that SFAS 106 accounting is consistent with the Commission's regulatory accounting needs.⁸ MCI's other demands contain no facts that are germane to exogenous treatment of SFAS 106 costs.

We believe these late MCI arguments are meritless. If there are any questions on this issue, we would be happy to respond. Two copies of this written ex parte response are being filed with the Secretary today for filing in the docket file of this proceeding.

Respectfully submitted,



ccs: Commissioners
Commissioner Legal Assistants
Cheryl Tritt, Chief, Common Carrier Bureau
Greg Vogt, Chief, Tariff Division
Mary Brown

⁷ Minutes of the November 19, 1992 EITF Meeting at 3. EITF minutes are a matter of public record. The EITF established other requirements before a regulatory asset could be established, including: annual SFAS 106 costs (including the TBO) should be included in rates within five years of adoption of SFAS 106; and the combined deferral/recovery period should not exceed approximately 20 years.

⁸ Order, AAD 91-80, released December 26, 1991. "After reviewing SFAS-106, we have concluded that adoption for accounting purposes will not conflict with the Commission's regulatory objectives." at ¶ 3. Also, RAO Letter 20, released May 4, 1992, dictates how carriers account for SFAS 106.

Attachment I - NERA Study (April 15, 1992)

**THE TREATMENT OF FAS 106 ACCOUNTING CHANGES
UNDER FCC PRICE CAP REGULATION**

Prepared for

Pacific Bell

**National Economic Research Associates, Inc.
One Main Street
Cambridge, Massachusetts 02142**

**William E. Taylor and Timothy J. Tardiff
Study Directors**

April 15, 1992

nera

TABLE OF CONTENTS

	<u>page</u>
I. INTRODUCTION AND SUMMARY	1
II. BACKGROUND	3
III. THE THEORETICAL BASIS FOR EXOGENOUS COST TREATMENT	4
A. <u>Price Cap Theory</u>	5
B. <u>Accounting Cost Changes in the Price Cap Formula</u>	9
1. Utility Prices Should Reflect Economic Costs	10
2. Accrual Accounting Costs for OPEBs Are Economic Costs	11
3. Prices in Unregulated Markets Reflect Accrual Accounting for OPEBs	12
4. Cash Accounting for OPEBs Distorts Competition in Labor and Telecommunications Service Markets	13
5. Conclusion	15
C. <u>Exogenous Cost Changes in the Price Cap Formula</u>	18
D. <u>Applying the Price Cap Formula</u>	22
IV. THE EFFECT OF FAS 106 ON PACIFIC BELL'S INTERSTATE PRICES	25
A. <u>The Effect of FAS 106 on Pacific Bell Costs is Approximately 1.92 Percent</u>	26
B. <u>The Effect of FAS 106 on the GNP-PI is Less Than 0.12 Percent</u> ..	27
APPENDIX	35

THE TREATMENT OF FAS 106 ACCOUNTING CHANGES UNDER FCC PRICE CAP REGULATION

I. INTRODUCTION AND SUMMARY

Under the theory of price cap regulation, changes in costs that are beyond the control of the firm (so-called "exogenous cost changes") are accorded special treatment. In general, changes in a regulated firm's costs should lead to changes in its prices because economic efficiency is enhanced when prices are kept close to (incremental) costs. However, the direct pass-through of all cost changes as price changes--as is done under traditional rate of return regulation--removes incentives the firm might have to control cost changes in the first place. Thus, price cap regulation permits only exogenous cost changes to affect the price cap. Incentives are preserved, and price changes follow cost changes to the greatest extent possible.

Pacific Bell is required to adopt a particular set of accounting changes--FAS 106 (Employers' Accounting For Postretirement Benefits Other Than Pensions)--no later than 1993. These changes were recently enacted by the Financial Accounting Standards Board (FASB) and have been adopted by the FCC.¹ Pacific is seeking recovery of the associated cost increase through a one-time Z-adjustment to its price cap to reflect (i) the amortization over 15 years of the historical liability for these benefits, and (ii) the shift from cash to accrual accounting for these benefits on a going-forward basis. Future changes in postretirement expenses would have no future effect on

¹Federal Communications Commission, "Notification of Intent to Adopt Statement of Financial Accounting Standards No. 106, Employers' Accounting for Postretirement Benefits Other Than Pensions," AAD 91-80, December 1991.

Pacific's price cap, except that there would be an offsetting Z-adjustment after 15 years when the historical liability is entirely amortized.

We have been asked to determine whether--and to what extent--FAS 106 accounting qualifies for treatment as an exogenous cost change under the price cap plan promulgated for the interstate services of Tier 1 local exchange telephone companies (LECs). To answer this question, we must examine three economic issues. First, adoption of FAS 106 leads to a change in accounting costs. In what sense does this change represent a change in costs that should be reflected in a regulated firm's price cap? Second, is this change in costs beyond the control of a regulated firm so that its efficiency incentives would not be diminished if the cost change were passed through in prices? Finally, what portion of this change in costs will be automatically recovered through an increase in the rate of inflation and what portion remains to be recovered through an exogenous cost change to the firm's price cap?

Our conclusions support exogenous cost treatment for FAS 106 cost changes. First, we find that adoption of accrual accounting for postretirement benefits represents an accounting recognition of proper economic costs. Prices under price caps were initially set using cash accounting for postretirement benefits. Thus a change in the price cap is necessary so that prices will reflect the economic cost of service. Second, adoption of FAS 106 accounting by the FASB and by the FCC is certainly beyond the control of the regulated firm. Moreover, a one-time adjustment to its prices to reflect the economic costs of postretirement benefits does not reduce the firm's incentive to control expenditures on those benefits. Third, because prices in unregulated markets already reflect the economic costs of postretirement benefits, adoption of FAS 106 will

not cause them to change. Hence the effect of FAS 106 on output prices is confined to the regulated sector, and we estimate its effect on the rate of growth of GNP-PI to be less than 0.12 percent per year.

II. BACKGROUND

In December 1990, the FASB issued a formal statement, "Statement of Financial Accounting Standards No. 106" (FAS 106), acknowledging that the provision of other post-employment benefits (OPEBs) is a form of deferred compensation and that accounting for OPEBs should be changed from a cash to an accrual basis. Cash accounting, which recognizes OPEB costs only when they are paid to retirees, understates current costs and overstates future costs of employing any individual worker. If the prices of a regulated firm are set to recover book costs, cash accounting for OPEBs can lead to an intertemporal subsidy in which current ratepayers pay less than the true cost of service and future ratepayers pay more.

Implementation of accrual accounting for OPEBs in 1993 means that going forward, the OPEB liability will be recognized on the books of the company when the liability is incurred (i.e., while the employee is working and qualifying for the benefit) rather than when the liability is actually paid (after the employee retires and receives medical, dental, or life insurance benefits covered by the plan).² This liability will have several components. First, companies must account for the actuarial present value

²In addition, FAS 106 requires that the unrecognized accumulated liability to active and retired workers for OPEBs be recognized either in 1993 or amortized over an acceptable time period.

of future OPEBs that are associated with employees hired prior to 1993. For many companies, this liability is a large fraction of their net worth; thus FAS 106 permits companies to amortize this liability over a period not to exceed 20 years. Second, companies must recognize the expected present value of OPEBs to which active employees become entitled in a given year. Annual interest on the entire OPEB obligation is an additional expense to be recognized under accrual accounting for OPEBs. Finally, accrued costs are reduced by the actual return on qualified plan assets.

This change in accounting costs for OPEBs raises the following regulatory question: With the adoption of FAS 106 by the FCC, what is the appropriate regulatory treatment under the price cap plan of the change to accrual accounting for OPEBs?

III. THE THEORETICAL BASIS FOR EXOGENOUS COST TREATMENT

In this section, we show how a Z-adjustment should be calculated in the price cap formula given that the firm has experienced an exogenous change in costs for which Z treatment is appropriate. To understand how Z should be measured, we must understand where the annual price cap adjustment formula comes from and what it is supposed to accomplish.

The purpose of the annual price cap adjustment is to insure that if the regulated firm meets its productivity growth objective, its adjusted revenues will just track its costs every year, whatever the level of inflation happens to be. In the FCC

price cap plan for Tier 1 LECs, we fix a productivity target X , annually observe inflation measured by GNP-PI, and calculate Z -adjustments whenever appropriate so that if the productivity objective is met, the allowed change in the regulated firm's price will be close to its change in costs. Thus, our explanation begins with the total factor productivity (TFP) growth objective for the regulated firm, $dTFP$, which represents the annual year-over-year percentage growth in the regulated firm's TFP. From the productivity growth target and the objective of having revenues track costs, we derive below the annual price cap adjustment formula used in the FCC price cap plan. Once we know how the variables GNP-PI, X , and Z in the plan are derived and what they are supposed to measure, we can interpret them in the context of FAS 106 accounting changes.

A. Price Cap Theory³

A basic identity in economic theory states that the rate of growth of TFP is equal to the difference between the rates of growth of the firm's input prices and output prices.⁴ Applying this rule to the regulated telecommunications firm, we write

$$dp^* = dw - dTFP$$

where dp^* represents the annual percentage change in the telecommunications firm's output prices, and dw represents the annual percentage change in its input prices. To

³The price cap plan for Tier 1 LECs includes a factor that accounts for non-traffic sensitive costs. We ignore this term in our discussion, since it is not part of the theoretical basis for price caps.

⁴We show this formally in the Appendix.

raise or lower the firm's output price in order to track exogenous changes in cost, we write

$$(1) \quad dp = dw - dTFP + Z^*$$

where dp represents the annual percentage change in the telecommunications firm's output prices adjusted for exogenous cost changes, and Z^* represents the unit change in costs due to external circumstances.⁵ Thus, to keep the revenues of a price cap regulated firm equal to its costs despite inflation, the price cap formula should (i) increase the firm's output prices at the same rate as its input prices less the target change in productivity growth, and (ii) directly pass through exogenous cost changes.

Equation (1) looks a great deal like the annual adjustment equation in the FCC price cap plan: the allowed price change for the firm is set at a measure of its input price change less its TFP growth adjusted for exogenous cost pass-throughs. If GNP-PI were taken as a measure of the firm's input price growth and X were the firm's TFP growth target, equation (1) would indeed be the same as the price adjustment formula (apart for the adjustment for nontraffic sensitive costs). However, there are two errors in this interpretation:

1. The GNP-PI is a measure of national output price growth, not input price growth. So even if the regulated firm is a microcosm of U.S. industry, GNP-PI is not an appropriate measure of its input price growth.⁶
2. X in the price cap plan is a target TFP growth rate for the regulated firm relative to U.S. industry as a whole (or

⁵Note that Z^* can be positive or negative.

⁶Recall that input price growth differs from output price growth by the growth in TFP. Only if $dTFP^*$ were 0 could GNP-PI be a good measure of national input price growth.

relative to the TFP growth already embodied in the GNP-PI). The change in TFP in equation (1) is the absolute TFP growth for the regulated firm. Again, unless U.S. TFP growth is 0, X is not equal to $dTFP$.

To get from equation (1) to the price adjustment formula, we must compare the productivity growth of the regulated firm with the productivity growth of the U.S. economy. The reason for this comparison is that it is difficult to measure input price growth objectively. In particular, no competent party outside of the industry, such as the Bureau of Labor Statistics or the American Productivity Center, maintains an index of telecommunications input prices. However, by comparing productivity growth of the firm with that of the U.S. economy, the difficult measurement of input price growth can be avoided.

For the U.S. economy as a whole, the existence of effective competition implies that there are no long run excess profits, so the relationship among input prices, output prices, productivity, and exogenous cost changes can be derived for the nation as a whole in the same manner as it was derived in equation (1) above:

$$(2) \quad dp^N = dw^N - dTFP^N + Z^N$$

where dp^N is the annual percentage change in a national index of output prices; dw^N is the annual percentage change in a national index of input prices; $dTFP^N$ is the annual change in the economy-wide total factor productivity, and Z^N represents the change in national output prices caused by the exogenous factors included in equation (1). If we subtract equation (2) from equation (1), we see that

$$dp - dp^N = [dw - dw^N] - [dTFP - dTFP^N] + [Z - Z^N].$$